

We claim:

1. An polymerizable composition comprising:

(a) an aqueous microemulsion comprising one or more hydrophobic monomers, one or more hydrophilic and/or amphiphilic monomers, one or more initiators; and

(b) at least one thickening agent comprising a polymer or copolymer of acrylic acid.

2. The polymerizable composition of claim 1 wherein the thickening agent comprises a polymer of molecular weight between about 200,000 and about 800,000.

3. The polymerizable composition of claim 1 wherein the thickening agent comprises a substantially linear polymer.

4. The polymerizable composition of claim 1 wherein the polymer comprises at least about 20 weight percent acrylic acid monomer.

5. The polymerizable composition of claim 1 wherein the polymer comprises at least about 80 weight percent acrylic acid monomer.

6. The polymerizable composition of claim 1 further comprising one or more water-soluble or water-dispersible additives.

7. The polymerizable composition of claim 6 wherein at least one of the water-soluble or water-dispersible additives is selected from the group consisting of electrolytes, plasticizers, antimicrobial agents, therapeutic agents, and combinations thereof.

8. A pressure sensitive composition comprising a pressure sensitive microemulsion and at least one thickening agent comprising a polymer or copolymer of acrylic acid.

5 9. A method of forming a polymerized microemulsion pressure sensitive adhesive composition in contact with a substrate, comprising the steps of:

(1) providing an aqueous microemulsion comprising one or more hydrophobic monomers, one or more hydrophilic and/or amphiphilic monomers and one or more initiators;

10 (2) combining the aqueous microemulsion with at least one thickening agent comprising a polymer or copolymer of acrylic acid;

(3) coating the thickened microemulsion onto the substrate; and

(4) irradiating the microemulsion in order to form the pressure sensitive adhesive composition in contact with the substrate.

15 10. The method of claim 9 wherein the thickening agent comprises a polymer of molecular weight between about 200,000 and about 800,000.

20 11. The method of claim 9 wherein the thickening agent comprises a substantially linear polymer.

12. The method of claim 9 wherein the polymer comprises at least about 20 weight percent acrylic acid monomer.

25 13. The method of claim 9 wherein the polymer comprises at least about 80 weight percent acrylic acid monomer.

14. The method of claim 9 wherein the irradiation is ultraviolet radiation in the range of 280 nm to 400 nm.

15. A method of forming a polymerized microemulsion pressure sensitive adhesive composition in contact with a substrate, comprising the steps of:

(1) mixing hydrophilic monomer(s) and/or amphiphilic monomer(s) in a weight percent ratio of from about 100/0 to about 0/100 to form a first mixture;

(2) mixing hydrophobic monomer(s), having a glass transition temperature suitable for forming a hydrophobic pressure sensitive adhesive, into the first mixture in a weight percent ratio of from about 80/20 to about 10/90 hydrophobic monomers/first mixture to form a second mixture;

(3) mixing surfactant(s) into the second mixture in a weight percent ratio of from about 5/95 to about 30/70 surfactant/second mixture to form a third mixture;

(4) mixing initiator(s) into the third mixture in a weight percent ratio of from about 0.01/99.99 to about 2/98 initiator/third mixture to form a fourth mixture,

(5) independently, mixing water and water-soluble or water-dispersible additives together in a weight percent ratio of from about 100/0 to about 80/20 to form an aqueous mixture;

(6) mixing the aqueous mixture and the fourth mixture together in a weight percent ratio of from 5/95 to about 50/50 aqueous mixture/fourth mixture to form a microemulsion;

(7) mixing the microemulsion with a thickening agent comprising a polymer or copolymer of acrylic acid monomer together in a weight ratio of from about 0.5/99.5 to about 5/95 to form a thickened microemulsion;

(8) coating the thickened microemulsion onto the substrate; and

(9) irradiating the microemulsion in order to form the pressure sensitive adhesive composition in contact with the substrate.

16. The method of claim 15 wherein the water-soluble or water dispersible additives are selected from the group consisting of electrolytes, plasticizers, antimicrobial agents, therapeutic agents, and combinations thereof.